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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/839,940	04/20/2001	Ronald Dean Watkins	RD-29,211	4093

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GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH CENTER
PATENT DOCKET RM. 4A59
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NISKAYUNA, NY 12309

EXAMINER

VARGAS, DIXOMARA

ART UNIT	PAPER NUMBER
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2859

DATE MAILED: 10/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/839,940

Applicant(s)

WATKINS ET AL.

Examiner

Dixomara Vargas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08/29/2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

2. Claims 1-8 and 10-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Fujita et al (US 6,169,401).

With respect to claims 1, 11 and 14, Fujita discloses a radio frequency coil assembly for a very high field MRI system comprising (Figure 3): a plurality of conductors arranged cylindrically and disposed about a patient bore tube of the MRI system (Figure 1), said conductors having a width selected for said RF coil assembly to resonate at substantially high frequencies and to minimize conductor inductance (Columns 4 and 5, lines 57-67 and 1-9; Figure 3); and, a plurality of capacitive elements for electrically interconnecting said plurality of conductors at respective ends of said conductors (Figure 3).

3. With respect to claim 2, Fujita discloses the width of the conductors is selected in accordance with: $W_{\max} = 2\pi * A/N$ where W_{\max} is the maximum width, A is the outer diameter radius of said patient bore tube and N is the number of said conductors (Columns 4 and 5, lines 57-67 and 1-9; Figure 3).

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4. With respect to claims 3 and 12, Fujita discloses said substantially high frequencies occurs in a range between about 64 MHz to about 500 MHz (Column 4, lines 19-40).
5. With respect to claim 4, Fujita discloses said width is about 7.9cm (Columns 4 and 5, lines 57-67 and 1-9; Figure 3), and said number of conductors is 16 (Column 4, lines 8-18).
6. With respect to claims 5 and 13, Fujita discloses said very high field MRI system produces a magnetic field of about 3 Tesla (Column 4, lines 19-39).
7. With respect to claim 6, Fujita discloses said plurality of conductors have a selectable length (Columns 4 and 5, lines 57-67 and 1-9; Figure 3).
8. With respect to claim 7, Fujita discloses said selectable length is about 55cm (Columns 4 and 5, lines 57-67 and 1-9; Figure 3).
9. With respect to claim 8, Fujita discloses said capacitive elements are low inductance end ring capacitors (Column 5, lines 3-9; Figures 3 and 4).
10. With respect to claim 10, Fujita discloses a plurality of gaps disposed between said conductors (Figures 3-4).
11. With respect to claim 15, Fujita discloses said plurality of conductors and plurality of capacitive elements are adapted to form a band pass RF coil assembly configuration (Figures 3 and 4).
12. With respect to claim 16, Fujita discloses said plurality of conductors and plurality of capacitive elements are adapted to form a low pass RF coil assembly configuration (Figures 3 and 4).
13. With respect to claim 17, Fujita discloses said plurality of capacitive elements form a high pass RF coil assembly configuration (Figures 3 and 4).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita et al (US 6,169,401) in view of Eberler et al. (US 6,323,548).

With respect to claim 9, Fujita discloses the claimed invention as stated above in paragraph 2 except for the conductors further include segmented slots for reducing eddy currents induced by gradient coils of said MRI system. However, Eberler discloses RF conductors with segmented slots for reducing eddy currents induced by gradient coils of said MRI system (Column 2, lines 10-61). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have Eberler's slots for reducing eddy currents in Fujita's radio frequency coil assembly for the purpose of improving the image quality by enhancing the current density distribution of the system and avoiding the eddy current from affecting the other components of the apparatus.

Response to Arguments

16. Applicant's arguments filed August 29, 2003 have been fully considered but they are not persuasive.

17. Applicant argues that the prior art fails to teach or fairly suggest the claimed conductors with a selected width for said RF coil assembly to minimize the inductance.

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18. The examiner disagree with applicant arguments because the prior art made of record (6,169,401) discloses the legs are spaced by varying amounts from each other (Column 4, lines 57-60) which is clearly shown on Figure 3. If applicant intends that the RF coil assembly includes conductors that are strip conductors wherein each conductor have a specific width each different from the other, applicant is reminded that said limitation is not positively recited and instead, the claim recite a width which has been interpreted as the measurement between the conductors of the assembly since the examiner is entitled to give the broadest interpretation possible to the claim language.

Conclusion

19. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

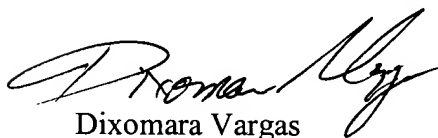
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20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional prior art cited in the PTO 892 discloses different coil configurations for reducing eddy currents.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dixomara Vargas whose telephone number is (703) 305-5705. The examiner can normally be reached on 8:00 am. to 4:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (703) 308-3875. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3432 for regular communications and (703) 305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0956.



Dixomara Vargas
Art Unit 2859
October 21, 2003



Diego Gutierrez
Supervisory Patent Examiner
Technology Center 2800